
LD 77: Manual Print

LD 77 is used to print the signals that come from the peripheral packs to the common equipment.

Note: This Overlay is intended for people experienced with the message formats and protocols.

Some loop-level commands are not valid on Option 11 systems, and have been replaced with slot-level commands.

When to use LD 77

LD 77 can be useful in determining which peripheral pack (line or trunk) is causing a system overload in situations in which the CPU cannot narrow the problem to a specific Terminal Number (TN). Once the program is loaded from a tape, the user may request the system to print all the input messages from a specific area of peripheral equipment.

Manual Print can also be used to continuously send frequency combinations by defining the loop and terminal number of the MFE card, busying the channel, setting the read/write bit to write, defining the message and repeatedly sending it. This channel will not be available for regular signaling until the message sending is stopped and the channel is idled.

When a machine is carrying traffic, there will be a large number of valid messages generated from the peripheral equipment. Thus, the program will be most effective for trouble-shooting when:

- there is little system traffic
- message address range is restricted (i.e., looks only at one shelf or loop)

This program has capabilities which are used by the software designers during development activities. The user is protected from accidental access to these commands (and resulting potential service degradation) as a password is required. This password is not available to customers.

LD 77 Output Format

All numerical input/output is in hexadecimal format. The output is in the following format:

<loop> <shelf> <card> <terminal> <message> <time-stamp>

The loop, shelf and card fields identify the circuit pack generating the message.

Abbreviations for LD 77

The fields are defined as follows:

b = bypass bit value

cb = continuity bit

ch = chip on a given SSD Peripheral Signaling pack

g = group

l s c u = TN: loop, shelf, card, unit

ln = link

loop = network loop

m = module

p = page

ps = Peripheral Signaling pack

sh = Multigroup shelf

ts = time slot

v = desired lamp state; 0 = lit, 1 = dark

x = Multigroup bit

Some four-letter commands can be abbreviated to a one-letter command when entered from a TTY (but not an SL-1 telephone). The one-letter command is shown in parentheses after the four-letter mnemonic (e. g., ARPS (F) l s 32 can be entered as F l s 32).

LD 77 Input Format

All input is in decimal form, except message data which is in hexadecimal form. Space and carriage return are automatically done by the overlay when the expected number of digits are input. Therefore the number of input digits must be strictly entered for each input parameter. The number of letters specified in each parameter field dictate the number of hex or decimal digits that must be entered.

For example:

Enter for TN 1 0 2 0:

001 0 02 00

Enter for TN 156 1 15 30:

156 1 15 30

Basic commands

Only “P” commands can be used on superloops. Some of these commands may not be valid on Option 11 systems; for valid Option 11 commands see LD 77 Option 11 commands in this section.

ANWK (B) loop ts	Read/write network card memory
ANWS (C) loop ts	Read/write network card memory (short)
ARPM loop 20	Print contents of timeslots in RPC
ARPM loop ts b s c u	Get contents of timeslot ts, loop
ARPS (F) loop ts	Read Remote Peripheral Switch memory
DENL loop	Get the density of loop
DFTM (T) s c u	Define unit to receive signaling messages
DRTM (N) l s c u	Stop printing messages
N	Stop print
P	Print all messages
P lll	Print all messages from specified loop lll
P lll s	Print all messages from specified shelf lll s
P lll s cc	Print all messages from specified card lll s cc
PRTM (P) lll s cc uu	Print messages, as specified lll s cc uu
WCTS loop	Print the current unit scan of loop
WMBY l s c u	Write the maintenance bit for the given unit to BUSY
WMUB l s c u	Write the maintenance bit for the given unit to NOT BUSY
XRCL loop	Read contents of RPC control register for loop
XRSH loop	Read and print contents of SHEN register for loop
XRST loop	Read and print contents of STATUS register for loop
XTRP loop	Test remote RPC processor for loop
XTLP loop	Test local RPC processor for loop
XWCS loop xxxx	Writes RPC control/SHEN register for loop

Basic commands (Release 15 & later)

DISC	Call disconnect
DLMP 0/1	Turn on/off lamp audit
DMTN	Monitor input and output SSD messages for 1 to 6 TNs
IMSG	Send input SSD messages from PE to Meridian 1 CPU
KALL	Call set up without specifying timeslots
KALS	Call set up with specifying timeslots
KILLx	Reset one or all TN being monitored
XMSG	Send output SSD messages from Meridian 1 CPU to PE
XMII, XMIO	Send input/output XMI messages between the CPU and superloops

Option 11 commands

DFTD c ch	Define the digital channel to receive subsequent messages
DISC	Call disconnect
DLMP n	For n=0, turn on lamp audit; for n=1, turn off lamp audit
DMTN	Monitor input and output SSD messages for 1 to 6 TNs
DPRT card	Print messages from this digital card
DPRT c ch	Print messages from this digital channel
DRTD card	Stop printing messages from this digital card
DRTD c ch	Stop printing messages from this digital channel
IMSG	Send input SSD messages from XPE to CPU
KALL	Call setup without specifying timeslots
KALS	Call set up specifying timeslots
KILL x	Reset one or all TNs being monitored
P card	Print all messages from the specified card
P c u	Print all messages from the specified unit
XMSG	Send output SSD messages from CPU to XPE

Alphabetical list of commands

Command	Description	Pack/Rel
ANWK (B) loop ts	Read/write network card memory. Access the specified network card memory to read and print one word. The word format is: <cb s c u x ln --> Where: cb = continuity bit, s = shelf, c = card, u = unit, x = multigroup bit and ln = link You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.	basic-1
ANWS (C) loop ts	Read/write network card memory (short). Access the specified network card memory (short form) to read and print one word. The multigroup bit and continuity field are not used. The word format is: <s c u ln --> Where: s = shelf, c = card, u = unit and ln = link. You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.	basic-1
ARPM loop 20	Prints contents of 32 timeslots in RPC associated with loop (20 hexadecimal = 32 decimal).	basic-1
ARPM loop ts b s c u	Get contents of timeslot ts, loop. The system prints data in the form "bscu", where b is the current value of the bypass bit in the Remote Peripheral Equipment Controller (RPC) memory (0 or 1) for that shelf, card and unit. The user can enter a new bypass bit for the RPC memory after the dash.	basic-1

ARPS (F) loop ts	Read Remote Peripheral Switch memory. Access the specified Remote Peripheral Switch (RPS) memory to read and print one word. The word format is: <cb s c u --> Where: cb = continuity bit, s = shelf, c = card and u = unit. You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.	basic-1
DENL loop	Get the density of loop.	basic-1
DFTD c ch	Define the digital channel to receive subsequent messages. (Option 11)	
DFTM (T) s c u	Define unit to receive signaling messages.	basic-1
DISC	Call disconnect. Format is: DISC TN1 111 s cc uu TN2 111 s cc uu This command disconnects the call specified by the TNs. A scan of the connection memory is done prior to disconnecting the call, if no timeslot can be found for the specified TN, nothing is done. TN1 and TN2 are prompted by the program.	xpe-15
DLMP 0/1	Turn on/off lamp audit. Format is: • DLMP 0 = turn on lamp audit • DLMP 1 = turn off lamp audit	xpe-15

DMTN	Monitor input and output SSD messages for 1 to 6 TNs. This command is used to monitor all SSD messages for the specified TN. TN is automatically prompted by the program. Up to 6 TNs can be monitored at the same time. Enter the DLPM and DMTN commands as follows: DLMP 2 DMTN TNx lll s cc uu Where: x = (1-6), TN index The output format is: OSSD111 TN MSG TIME Where: • OSSD111 = header • TN = packed TN • MSG = SSD message content • TIME = real time clock before output when work scheduler gets the input message	xpe-15
DPRT c ch	Print messages from this digital channel (Option 11).	xpe-15
DPRT card	Print messages from this digital card. (Option 11).	xpe-15
DRTD c ch	Stop printing messages from this digital channel. (Option 11).	xpe-15
DRTD card	Stop printing messages from this digital card (Option 11).	xpe-15
DRTM (N) l s c u	Stop printing messages from the loop, shelf, card and unit. Only loop and shelf numbers are required.	basic-1

IMSG Send input SSD messages from PE to Meridian 1 CPU. This command is used to simulate incoming SSD message from the peripheral equipment. The specified TN must be equipped. xpe-15

Format is:

```
IMSG
TN lll s cc uu
NUMBER MESSAGES mm
# TIMES TO SEND hhh
MSG DATA xxxx xxxx xxxx xxxx. . .
```

Where:

- mm = number of SSD messages (1-10) to be sent
- hhh = number of times (1-999) to simulate the SSD input message
- xxxx = SSD message content. Number of message contents depends on input of mm

TN, NUMBER MESSAGES, # TIMES TO SEND, and MSG DATA are prompted by the program.

KALL Call set up without specifying timeslots. xpe-15

This command is used to set up a simple call (intra or inter-group). The system finds an available timeslot for the specified TNs. The specified TN must be equipped, enabled and idle.

Format is:

```
KALL
TN1 lll s cc uu,
TN 1 s c u (Option 11)
Loop 0 00 CH for Digital Trunk Cards.
TN2 lll s cc uu,
TN 1 s c u (Option 11)
Loop 0 00 CH for Digital Trunk Cards.
TN1 and TN2 are automatically prompted by the program.
```

If AUDIT is running, call(s) are disconnected, and AUD17, AUD18, AUD19, and/or AUD31, AUD32 is printed.

Call setup command simply finds the available timeslots and sets up the connection memory and/or junctor memory. BUG105, BUG330 may be printed if illegal sequences are carried out.

These commands are designed for lab use only, and should be used cautiously in a live switch.

KALS	Call set up with specifying timeslots. This command will set up a call specified by the input TNs and the timeslots if both TNs are equipped, enable and idle. The specified timeslots will be used if they are idle, if the specified timeslot are occupied, then the call will not be set up. See Notes with the KALL command. Format: <pre>KALS TN1 lll s cc uu, TN 1 s c u, (Option 11) Loop 0 00 CH for Digital Trunk Cards. TN2 lll s cc uu, TN 1 s c u, (Option 11) Loop 0 00 CH for Digital Trunk Cards. TIMESLOTS ts1 ts2</pre> Where: • ts1 = specified timeslot of the TN1 • ts2 = specified timeslot of the TN2 • TN1, TN2, and TIMESLOTS are prompted by the program.	xpe-15
KILLx	Reset one or all TN being monitored. Where: x = the TN index number (1-6) entered with the DMTN command. Enter 7 to reset all the output monitored TNs.	xpe-15
N	Stop print.	basic-1
P	Print all messages.	basic-1
P card	Print all messages from specified card. (Option 11)	basic-15
P c u	Print all messages from specified unit. (Option 11)	basic-15
P III	Print all messages from specified loop. Enter the exact number of digits. Example: for loop 4, enter 004	basic-1
P III s	Print all messages from specified shelf. Enter the exact number of digits. Example: for loop 4, enter 004.	basic-1
P III s cc	Print all messages from specified card. Enter the exact number of digits. Example: for loop 4, enter 004.	basic-1

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PRTM (P) lll s cc uu	Print messages, as specified. Only loop and shelf numbers are required. Enter the exact number of digits. (Example: for loop 4, enter 004.)	basic-1
WCTS loop	Print the current unit scan of specified loop. Outputs shelf, card and unit.	basic-1
WMBY l s c u	Write the maintenance bit for the given unit to BUSY.	basic-1
WMUB l s c u	Write the maintenance bit for the given unit to NOT BUSY.	basic-1
XMII, XMIO	Send input/output XMI messages between the CPU and superloops. Send input/output XMI messages to the Peripheral Controller (NT8D01) or Network card (NT8D04). Use XMII for input messages from the Network card (NT8D04) to the CPU. Use XMIO for messages from the CPU to the Network. This command is used to simulate input/output XMI message. It may not be useful in LD 77, a similar command is available in resident debugger.	xpe-15

Format:

```
XMII or XMIO
LOOP lll
NUMBER MESSAGES m
# TIMES TO SEND hhh
MSG DATA
cccc xxxx xxxxxxxxx
cccc xxxx xxxxxxxxx
cccc xxxx xxxxxxxxx
```

Where:

- lll = Loop number
- m = Number of multiple XMI messages (1-6)
- hhh = Number of times to send XMI messages (1-999)
- cccc = Control word; cccc is defined as follows:

r	ss	applic	type
-		--	

Where:

- **r** = one bit msg ready flag, always sets to
- **ss** = two bit sequence status field. ss may be:
 - a** B.00 : short message
 - b** B.01 : starting a long message (message has 6 or more words of data)
 - c** B.10 : continue a long msg
 - d** B.11 : end of a long msg
- **applic** = six bit value for msg's intended application. appl may be:
 - a** B.000001 : for LD 30
 - b** B.000010 : for LD 32
 - c** B.000011 : for LD 45
 - d** B.000100 : for LD 77
 - e** B.000101 : for XPE parameter download
 - f** B.000110 : for XNET action request
- **type** = seven bit value of message type
- **xxxx** = message data
-

XMSG

Send output SSD messages from Meridian 1 CPU to PE.

xpe-15

This command is used to send output SSD message to the peripheral equipment TN. The specified loop of the TN must be enabled and responding.

Format:

```
XMSG
TN lll s cc uu,
TN l s c u, for Option 11 only
Loop 0 00 CH for Digital Trunk Cards.
NUMBER MESSAGES mm
# TIMES TO SEND hhh
MSG DATA xxxx xxxx xxxx. . . .
```

Where:

- **mm** = number of SSD messages to be sent (1-10)
- **hhh** = number of times to output SSD message (1-999)
- **xxxx** = SSD message content. Number of message contents depends on the value of mm
- **TN, NUMBER MESSAGES, # TIMES TO SEND, and MSG DATA** are prompted by the program.

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XRCL loop	Read contents of RPC control register.	basic-1
XRSH loop	Read and print contents of SHEN register.	basic-1
XRST loop	Read and print contents of STATUS register.	basic-1
XTLP loop	Test local RPC processor for loop.	basic-1
XTRP loop	Test remote RPC processor for loop.	basic-1
XWCS loop xxxx	Writes RPC control/SHEN register for loop with data xxxx in hexadecimal format.	basic-1
